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*BILL P*

# JAPANESE BEETLE

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BELTSVILLE RANCH



Adult beetles feeding on fruit and leaves, about one-half natural size. Insert, adult beetle, about twice natural size. Figures below ground represent seasonal history of the Japanese beetle. Left to right, mature grub (late spring); pupa; beetle laying eggs (summer); developing grubs (late summer and fall); all about twice natural size.

## JAPANESE BEETLE

(*Popillia japonica* Newman)

The Japanese beetle feeds during the summer on the leaves, blooms, and fruits of more than 275 kinds of trees, shrubs, field crops, and garden plants, injuring many severely. During the rest of the year the insect lives in the soil as a white grub, feeding on the roots of grasses and other plants, and often impairing the turf in lawns, parks, and golf courses.

The Japanese beetle infests the coastal States from southern Maine into North Carolina, and inland to parts of West Virginia and Ohio. It is spreading a few miles a year. Wider spread is retarded by Federal-State quarantine regulation of the movement of plants, soil, and other infestible articles. Notify local agricultural authorities if beetles are observed outside of these areas.

For a number of years the Department of Agriculture, in cooperation with State and other Federal agencies, colonized the more promising parasites and diseases throughout the infested area. These and other natural enemies have reduced beetle populations. A dust containing spores of the milky disease is available from commercial sources; however, several years may elapse before an application has a significant effect on beetle populations, so the individual usually depends upon sprays or dusts to protect his plants.

### Control of Beetles

The beetles may be controlled on most plants by spraying with 3 ounces of 50-percent wettable DDT or 5 ounces of 50-percent wettable methoxychlor in 10 gallons of water. Emulsifiable DDT or methoxychlor at equivalent rates may be substituted for the wettable powders. Apply the spray when the beetles first appear. Repeat as needed to maintain a protective coating until the beetles disappear.

A derris spray, which is practically nonpoisonous to human beings, may be used to kill or drive beetles away from ripening apples, peaches, plums, cherries, grapes, small fruits, and flowering plants. Use 5 ounces of derris (4-percent rotenone) to 10 gallons of water. Repeat this spray at 7-day intervals.

When spraying equipment is not available, some protection may be obtained by applying a dust containing 5 percent of DDT or methoxychlor. Dusts must be applied more often than sprays.

### Control of Grubs

Grass in lawns, golf courses, and parks may be protected for 5 or more years with 1 application of one of the following dusts to each 1,000 square feet;  $5\frac{3}{4}$  pounds of 10-percent DDT,  $5\frac{3}{4}$  pounds of 10-percent toxaphene,  $4\frac{3}{4}$  pounds of 5-percent chlordane,  $3\frac{1}{2}$  pounds of 2-percent aldrin,  $3\frac{1}{2}$  pounds of 2-percent dieldrin, or  $2\frac{1}{2}$  pounds of 2-percent heptachlor. Choice of material can be based on availability and cost in the area. Mix the material with several times its volume of screened sand, soil, or fertilizer, and apply to the grass with a garden-type fertilizer distributor, or by hand. Emulsifiable concentrates or wettable powders of these toxicants, applied in 25 gallons of water at equivalent rates, may be substituted for the dust. Wash all materials into the ground with a hose.

**PRECAUTIONS.**—DDT, toxaphene, methoxychlor, aldrin, dieldrin, and heptachlor are poisons but, when used as recommended, are not likely to injure human beings, pets, wildlife, or vegetation. They should be handled with care. Store them in a dry place where children and animals will not have access. Do not spray or dust fruits with DDT later than 4 weeks before picking. Do not use DDT on fodder crops to be eaten by milk cows or by livestock being fattened for slaughter. Keep small children and domestic animals away from poisoned grass until it has been watered, or rain has fallen.